DOCUMENT RESUME

ED 203 305 CS 006 144

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TITLE A Comparison of Qualitative and Quantitative Observations of Nine Reading Teachers.
SPONS AGENCY National Inst. of Education (ED), Washington, D.C.
PUB DATE Apr 81
NOTE 26p.; Paper presented at the Annual Meeting of the International Reading Association (26th, New Orleans, LA, April 27-May 1, 1981).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Classroom Observation Techniques; Comparative Analysis; Grade 2; Primary Education; *Reading Research; *Reading Teachers; *Research Methodology; *Teacher Behavior; *Teacher Evaluation

ABSTRACT

Comparisons were made of qualitative and quantitative information collected in nine second grade reading classes in a study that examined the respective strengths and weaknesses of using such information to evaluate teacher behavior. Data that were collected included trained ethnographers' narrative observations of teacher behavior (the qualitative information) and the codings of four "frames" of classroom teacher-student interaction per hour of observation (the quantitative information). When comparisons were based on summary profiles of the two types of observations, there was overall agreement between the two data sources, especially with regard to the teachers' tendency to deal with different units of students (individuals, small groups, and whole classrooms) and how much observed time was spent on academic versus behavioral matters. Slight elevations in such affective behaviors as criticism or punishment were found to affect the narrative data much more heavily than the quantitative data. In general, when the teacher's behavior in the classroom was consistent, the qualitative and quantitative profiles showed good agreement. When the pattern of teacher behavior was less clear, the narrative data provided invaluable information regarding the presence of unusual classroom activities or the absence of expected ones. (RL)

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A Comparison of Qualitative and Quantitative Observations of Nine Reading Teachers

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April 1981

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This study was supported in part by Contracts and Grants for the National Institute of Education to the Research and Development Center for Teacher Education, The University of Texas at Austin. The opinions expressed herein do not necessarily reflect the position or policy of the National Institute of Education and no official endorsement by that office should be inferred. Paper presented at the annual meeting of the International Reading Association, New Orleans, 1981.

CS006144

A Comparison of Qualitative and Quantitative Observations of Nine Reading Teachers

Past reports from this project have compared qualitative and quantitative methods of classroom observation in order to examine their respective strengths and weaknesses (Malitz, Kerker & Gainey, 1980) and to generate complete descriptions of the classrooms involved (Kugle & Clements, 1980). The data upon which these studies were based consisted of summary profiles of the qualitative and quantitative information collected in the classroom. The present report extends this previous work by comparing the raw, unsummarized data generated from the two methodologies. After a description of the methods and procedures used to collect this data, findings from the previous reports will be reviewed and discussed. This will be followed by a description of the comparison process and findings from the raw data study. Finally, recommendations for the optimal utilization of these two methodologies in classroom observation will be presented.

Method

Sample

The sample consisted of nine second grade classrooms in two small school districts. Four of the classrooms were in a rural district with an ethnically mixed population; the remaining five classes were in a predominately white suburban district. Overall, the sample included students of high, medium, and low socioeconomic status. The level of experience among the teachers ranged from no previous teaching to nine years of experience.

The focus of observation was reading instruction. Observation began in late November, 1978, and continued throughout the rest of the school year. Each classroom was observed during reading instruction by an

ethnographer and a classroom coder ten times throughout the year, and each observation lasted 90 minutes. Four of the ten observations were also videotaped for each classroom.

Observation System

The classroom observation system chosen for this study was one developed by the Stanford Research Institute (SRI) for use in the evaluation of the National Follow Through programs (Stallings & Kaskowitz, 1974). This rather complex system has several sections, but of particular interest was the Five Minute Observation (FMO). The FMO records classroom interactions in "frames" completed four times per hour. There are four codes comprising each frame describing who performed the action (teacher, child, small group, etc.), to whom it was directed (teacher, child, small group, etc.), and what was done (command, direct question, response, praise, no response, etc.). In addition, there are a number of optional modifiers with which a coder can indicate whether an interaction was academic or behavioral, verbal or nonverbal, and whether the interaction could be further categorized by other modifiers such as "organizing," "warmth," "punishment," or "touching." In essence, each frame is a sentence with a noun, object, verb, and optional modifiers. An FMO record, then, is a series of frames or sentences which describe interactions, and can be thought of as a coded ethnographic record. For this reason, the FMO seemed especially appropriate for comparison with ethnographers' narrative records.

A coder used in a previous study and a housewife who lived in one of the school districts served as SRI coders. A week of intensive training was provided by an expert SRI coder who had worked with the authors of the system. Reliability was assessed at the end of training by having the

expert and the two trainees view and code a videotape of classroom interaction. The expert's codes were accepted as a standard, and a count was made of the number of times the trainees' "who," "to whom," "what," and "how" codes agreed with the standard. Using this method, 92.4% of one trainee's codes and 93.2% of the other's codes were found to agree with the expert's. This was considered a satisfactory level of agreement to allow the trainees to go into the field.

Generalizability theory (Cronbach, Gleser, Nanda & Rajaratnam, 1972) was used to further assess the reliability of the coders, by having them observe two classrooms together. The data from these observations were used to calculate estimated reliability coefficients across coders, teachers, and observations. These coefficients were .99, .98, .94, and .99 for the "who," "to whom," "what," and "how" sections of the FMO, respectively, Thus, the data from this observation system appears to be quite reliable (see Malitz, et al., 1980 for an in-depth discussion of the reliability procedures used in this study).

Ethnographers

Three graduate students in the behavioral sciences were chosen as ethnographer trainees. Selection of these students was made on the basis of their displayed aptitude for accurate, sensitive, and empathetic observation as well as an ability to communicate clearly. Training was conducted over a period of four weeks by two staff members who had extensively researched classroom ethnography and who had consulted with others involved in training ethnographers. This training procedure was described in detail by Johnson and Gardner, (1979). Briefly, the training had four objectives: (1) to facilitate an understanding of the conceptual focus of the research study, (2) to establish the technique and intellectual

orientation for a common ethnographic approach, (3) to instruct the ethnographers in ethnographic techniques, and (4) to establish reliability among the ethnographers. "Reliability" in the fourth objective was not strict psychometric reliability but a more informal agreement among the ethnographers concerning the scope, detail, and interpretation of observation. This was achieved by having the ethnographers observe and discuss videotaped vignettes of classrooms at regular intervals.

Reducing the Narrative Data

During their classroom observations, the ethnographers kept running narratives of the events which transpired as well as of their impressions and feelings about what they observed. Because these field notes were rather volunimous, it was somewhat difficult to read them and compare them with the FMO data. Therefore, during the summer following the observation phase of this study, the ethnographers were asked to use their narratives and their recollections of the teachers to write "clinical descriptions" of the teachers they had observed. These ethnographic summaries provided the qualitative data base for the first two studies to be described.

Reducing the FMO Data

As mentioned previously, each FMO frame consists of a "who" code, a "to whom" code, and a "what" code. In addition, the code may contain a "how" modifier, as well as a code indicating whether the behavior was academic or non-academic as well as verbal or non-verbal. Because of the variety of specific codes, a great many codes are possible. In order to reduce these numerous combinations to a form which would be readily comparable to the clinical descriptions, the following criteria were used to generate categories: (1) division of the interactions into sensible units, similar to those found on other observation systems; (2) inclusion

of categories which occurred with farily high frequency in at least some of the nine classrooms; and, (3) utilization of most of the data.

The resulting category system was a hierarchical one consisting of two levels, major categories and subcategories. Major categories were created from combinations of "who" and "to whom" codes which occurred most often. This process thus categorized interactions according to who initiated them and to whom they were directed. The teacher-initiated categories were: teacher-initated individual interactions, teacher-initiated large group interactions, teacher-initiated small group interactions, and teacher non-instructional behavior. The student categories included student-initiated individual interactions, large group initiated interactions, and small group interactiosn. These major teacher- and student-initiated categories were further subdivided into a number of subcategories. This procedure categorized 94% of the total frames. It was felt that this system captured most of the major dimensions of classroom behavior and that the excluded frames were of little educational importance (e.g., teacher talking to an aide, or teacher running a record player). It should be pointed out that any process which reduces a large amount of raw data to a more manageable form is necessarily going to result in loss of information. Some of this information, although of rare occurrence, may be important to the members of particular class. This issue will be discussed further later in this report.

Figure 1 shows the categories resulting from the data reduction, and presents the SRI profile for one of the nine teachers. The format of these profiles is similar to one used by Stallings, Needels, and Staybrook (1979). Major categories and subcategories are shown on the left side of the profile. On the far right-hand side are two sets of percentages, one pertaining to

the sample of nine teachers as an aggregate, the other to the teacher of interest. The teacher categories and the student categories were treated separately in computing these percentages. For example, the percentage for "T initiated individ. interact. -- Total" indicates the percentage of the total teacher-initiated interactions which were directed towards an individual student. Similarly, "S initiated interactions -- total" indicates the percentage of the total student-initiated interactions which were initiated by a single student. All of these percentages were calculated separately for the sample as a whole and for the teacher of interest, and are listed under the "sample ave." and "this class" columns. The difference between these two figures indicates the degree to which the individual classroom displayed a high or low amount of the behavior, which is indicated by the "X" in the middle of the profiles.

In Figure 1, for example, 67.7% of Teacher 4's interactions were directed toward individual students while the value for the sample on this behavior was 53.9%. Since Teacher 4 was relatively high on this behavior, an "X" was placed on the right side of the deviation axis to show that the teacher was approximately 14 percentage points above the sample average on this category. An "X" to the right of the zero point indicates a realtively high amount of the behavior, and "X" to the left indicates a relatively low amount of the behavior, while an "X" in the middle indicates an average amount of the behavior, relative to the sample of nine teachers.

The percentages for the subcategories were computed in the same manner, except that their percentages were computed relative to their respective categories. In Figure 1, it can be seen that for the sample 17.5% of the total teacher-initiated individual interactions were in the "T command or

request" category, while Teacher 4 made commands or requests in 10.9% of her interactions directed towards individual students.

The percentages and the deviations in percent indicate the relative number of frames involving the category, and loosely reflect the amount of time devoted to these categories. It is very important to realize that these percentages were computed in a hierarchical fashion. The major teacher categories reflect the proportion of total teacher time spent in each category, while the student categories were computed in terms of total student-initiated frames. The subcategories were computed in terms of the total number of category frames. One can examine, for example, a teacher's behavior towards individuals as opposed to large or small groups. Likewise one can compare students' behavior in groups with their behavior as individuals. From this information, one can begin to make inferences about the ways in which teachers and students interact in various classroom contexts.

Other categorizations are available on the teacher profiles. On the bottom of the second page of each profile, all categorized interactions, whether student or teacher initiated, are broken down as academic, behavioral, or other. Academic interactions are those related to strictly academic matters (i.e., reading or spelling). Behavioral interactions indicate interactions involving behavioral corrections. Other task-oriented interactions include non-academic interactions such as procedural interactions and incidental conversations.

Page 3 of the profiles concerns affectively charged events. Because these events were rare, their occurrence was expressed in frequency rather than percent. It can be seen in Figure 1, for example, that for the sample as a whole, punishment occurred an average of 1.3 times out of the 10

observations, while one instance of punishment was observed for Teacher 4. The deviation graph for these events reflects the difference in frequency between the class and the sample average.

A great deal of information about the teachers can be gleaned from each of these profiles by comparing percentages and frequencies in the various categories and subcategories. In the following pages, results of the comparison of the inferences made from examining these profiles with the descriptions of the classrooms provided by the ethnographers will be presented.

Results of Comparing Summary Profiles from the Qualitative and Quantitative Methodologies

The first study conducted on the summary data was an in-depth examination of two of the nine teachers (Malitz, Kerker & Gainey, 1980). In general, it was found that there was overall agreement between the two data sources. This agreement was especially good with regard to describing the teacher's tendency to deal with different units of students (i.e., individuals, small groups, or whole classrooms), and how much of the interaction was spent on academic tasks (in this study, reading) or on behavioral control. However, it was also found that the emphasis upon various aspects of the classroom was uneven from narrative to narrative.

Often it appeared that personality or behavioral issues were stressed more than academic issues. In particular, it was found that slight elevations in affective behaviors such as criticism, or punishment, influenced the narrative descriptions greatly. This outcome might be a function of the differential emphasis on such events allowable in the two methodologies. For example, if a teacher were to physically strike a child or push him or her into a corner for punishment, this would most likely

create a tense atmosphere in the classroom and make a lasting impression on the students and observers. However, on the coding system used in this study this interaction would be recorded as "Teacher to Child, behavioral guidance, negative touch." Although this is an extreme example, it is clear that the ambience in a classroom resulting from affectively-toned interactions between teacher and student will not be adequately described in a frequency count of happy or unhappy codes.

Additional conclusions from this study were that quantitative observation is useful for testing inferences about classroom processes, and for providing information about the mechanics, but not the content or quality, of teaching. Content and quality can be captured by qualitative methodology, but this approach has the limitation of being somewhat awkward and subjective for inferential use in large scale studies. In general, it was concluded that the primary usefulness of qualitative observation lies in generating hypotheses which can be tested with quantitative instrumentation. A good example of this use of these two methodologies is described in Wood and Fiedler (1978).

The purpose of the second study conducted on the summary data was to combine the information from the two methodologies in order to generate complete descriptions of the second grade reading classes (Kugle & Clements, 1980). An obvious byproduct of this process was the discovery of the amount of agreement, disagreement, discrepancy, and nonoverlapping information provided by each type of observation.

Once again, it was found that there was good agreement between the two methodologies in describing the teacher's preference in dealing with different units of students, and in providing information relative to the academic (vs. behavioral) time spent in the classroom.

For the most part, the narrative descriptions were invaluable in providing explanations for the presence of unusual activities, or the absence of expected ones. For example, the SRI profile from Teacher 3 indicated a substantial amount of reading in unison by the students, but very few instances of individuals reading aloud. The narrative description supports this observation and provides the teacher's rationale for using choral reading: she "feels it keeps them from getting as bored as they would listening to others read, and it helps them 'build speed'," (p. 6). The observer notes: "I never saw them read aloud [individually]," (p. 7). Similarly, in teacher 2's class students were seldom observed reading aloud by either observer. However, the ethnographer's data provide some reasons why oral reading was rare in this classroom. The teacher "said that students read better and enjoyed it more when they read silently" (p.3). Moreover, "most of the latter half of the school year was spent on phonics, spelling, work skills, etc. rather than on reading per se" (p. 3).

In addition to providing a rationale for the observed classroom behavior, the clinical descriptions were useful in unraveling seemingly contradictory patterns in the SRI profiles. For example, in Teacher 4's class the students initiated many more happy interactions than the sample, in spite of the fact that the teacher initiated many more unhappy interactions than the sample average. Much light is shed on these affective interactions by the ethnographer's observation that "the teacher allowed, even encouraged, talking" during instruction. These were often personal comments (p. 4) which presumably were intended to keep the students involved in the story and vocabulary words (p. 10). However, the teacher "was not skilled at tying the students' comments together or following up on student

leads to teach something new or make a point. Transitions between 'talking' and 'working' were usually abrupt," (p. 10). In addition many examples are given in the narrative of the teacher's impatience and stern manner during instruction.

Overall when the SRI profile presented a clear pattern of teacher behavior this pattern was generally confirmed by the clinical description provided by the ethnographer. When the pattern was less clear the ethnographic descriptions contributed a great deal toward understanding the teaching activities reflected in the SRI codes. In addition the narrative data supplemented by interviews supplied information about the instructional style of the teacher, his or her theoretical orientation to reading instruction, his or her approach to controlling misbehavior, and a variety of other details not provided by the categorical coding.

Results of Comparing Raw Data from the Qualitative and Quantitative Methodologies

Since the comparison of qualitative and quantitative methodologies was a planned outcome of this research, the SRI coders were instructed to inform the ethnographers when their five-minute observations began and ended. Thus the beginning and ending times of the coding periods were entered into the narrative logs, making comparisons of the two types of data collected a meaningful activity.

The most striking difference between the narrative records and the coded records is the way in which the interactions in the classroom are condensed and expanded by the two methods. One gets the feeling when reading the observations that time is expanding and contracting as events transpire in the classroom. In most cases the coded records expand the classroom activities, while the narrative records condense them. Consider

the following description of part of a reading group lesson: the teacher begins--"'John, find a word that has a g-j sound.' 'Engine?' Teacher: 'very good. Any suffixes or prefixes? Engine is the root word, so what would be the suffix?' Teachers stays with him until he gets it right. They go over the words, taking turns, talking about each." Thus the narrative has provided a specific example of the pattern the teacher uses in the group lesson, and then points out that this pattern is repeated around the group. This paragraph is richly descriptive, but highly condensed and gives no indication of how much real time is spent repeating the pattern. The codes from the SRI observer expand these interactions to their fullest, requiring 45 separate frames and almost 2 1/2 pages to record this part of the lesson.

In other instances the narrative records elaborate particular interactions which are succintly coded in the SRI booklet. As mentioned previously, if the teacher requests a child to stop misbehaving and the child complies, this will be recorded in two frames by the SRI coder, just as a question and answer sequence would be. The tendency of the observer, however, will be to partition the classroom interactions into salient events. Thus, one question-answer sequence may be ignored by the narrator, while the teacher's interaction with a misbehaving child may be expanded to a paragraph in order to record the time of the teacher's voice, what the child muttered under his or her breath, and whether the child participated in the rest of the lesson.

In general then, the coded records view all interactions neutrally and give them equal weight, providing specific amounts of time spent in each type of activity. However, no information is supplied in the codes as to the specific content or quality of the activities. The

narrative record gives differential weight to interactions, and thus divides the world of the classroom into more or less salient events. This data includes information on the nature and content of each type of activity, and can provide insights as to a teacher's intended goal during instruction.

Uses of Qualitative and Quantitative Classroom Observation Data

It is of interest both to researchers and practitioners how qualitative and quantitative observation systems can best be used in the classroom. To a large extent, the preference of one method over another depends on the needs of the user, but some general recommendations and guidelines can be provided.

If the focus of the observations is not clearly defined, one might want to begin with narrative-type observations, and move to a more quantitative method as the focus is narrowed. This approach would be of use to researchers interested in generating hypotheses to be tested empirically later, or teachers who want to improve their teaching but aren't sure which areas are problematic. Observation would begin with extensive notes describing daily classroom activities. Impressions and inferences drawn from the narratives could be used to identify tentative hypotheses, which could then be examined more closely by incorporating quantitative coding ratings, or time counts into the observations. Once baselines rates of the behavior or activity of interest were established, further research, or intervention, could proceed.

For example, suppose a teacher was having difficulty completing a particular lesson each day, but didn't really understand where the scheduled time was being spent. An observer could make notes on the events which occurred during the time period of interest, and provide a

few working hypotheses about the problem. Perhaps the lesson is scheduled at a time when many interruptions occur, due to P.A announcements, or children coming in from outside classes. Or perhaps the teacher spends too long in reviewing previous material, using up valuable lesson time and possibly losing the attention of most of the students. Once these ideas were formulated, measures could be devised to examine them more closely. A count of the number of times the lesson was interrupted could be kept; the amount of time spent in review is easily recordable and could be supplemented by ratings of the students' attention level, or a regular count of how many students seemed to be on-task. Once baseline measures were available, changes aimed at improving the situation could be suggested and implemented.

If it is desired to change some aspect of classroom interaction, either at a teacher's request, or to apply a finding from research, then some means of measuring the change must be available. Obviously quantitative methodology is the most appropriate for accurately assessing increases or decreases in the focus behaviors. However, it would be a worthwhile endeavor to supplement this type of observation with either narrative notes, or interview data. This type of data is invaluable in terms of evaluating how effectively the change was implemented, whether it was accomplished smoothly or was disorienting to the students, and what kinds of impact (other than the desired one) the change might have had on the classroom participants. In addition, this type of information is useful for providing examples of how interventions can be effectively implemented, (or sabotaged) so that the success of future attempts at changing classroom behavior would be enhanced.

The most useful, informative, and comprehensive approach to classroom observation, either for research, feedback to teachers, or assessment of the impact of intervention, is a combination of qualitative and quantitative methodologies. Depending on the focus of the observations, systems can be devised which allow complementary views of the same processes. A good example of this is found in data collection techniques of the Classroom Organization and Effective Teaching (COET) project at the Research and Development Center for Teacher Education at The University of Texas at Austin. Since the research focus of COET is on classroom organization and management, the observation system is aimed at capturing the processes and activities surrounding the management of instruction. This obviously includes a great deal of the classroom dialogue and the narrative records attempt to record as much of this as possible. In addition, a variety of quantitative collection procedures are incorporated into the system. For example, the beginning and ending times of transitions from one activity to another are noted in special columns in the margins of the narrative records. The number, type, and duration of interruptions are also recorded as they occur. Every 15 minutes, each student is classified into engagement categories such as on-task; off-task, sanctioned; off-task, unsanctioned, and so forth. The times, format of the activity, and subject matter are also coded when the students are classified. After the observation, time logs are constructed which account for each minute of the observation in terms of subject matter, activity, and number of students involved. In addition, ratings of various aspects of the classroom are made after each observation: these address such issues as the clarity of explanations, the appropriateness and efficiency of administrative routines and procedures,

the amount and consequences of disruptive pupil behavior, and the general atmosphere of the class.

With this type of data, one can made inferences about various aspects of classroom managements and its effects on pupil learning and behavior. Key points found in the narratives can be tested with statistical analyses, and anecdotal evidence is available to support quantitative findings, or to uncover reasons why expected relationships were not found.

Although the system just described is one designed specifically for the study of classroom organization, it is not difficult to imagine how one might utilize this approach to study a wide variety of educational issues. The value to be gained from the effort seems obvious; one can have the power of statistical tests without sacrificing the richness of qualitative observation.

Summary

This paper presents the results of comparisons of qualitative and quantitative information collected in nine second-grade reading classes. When comparisons were based on summary profiles of the two types of observations there was overall agreement between the two data sources, especially with regard to the teacher's tendency to deal with different units of students and how much observed time was spent on academic versus behavioral matters. Slight elevations in such affective behaviors as criticism or punishment were found to affect the narrative data much more heavily than the quantitative data. In general, when the teacher's behavior in the classroom was consistent the qualitative and quantitative profiles showed good agreement. When the pattern of teacher behavior was less clear the narrative data provided invaluable information regarding the presence of unusual classroom activities or the absence of expected ones.

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When comparisons were based on unsummarized data it was found that interactions in the classroom were condensed and expanded differentially by the two methods. The coded records presented all events with neutral and equal weight and allowed specific amounts of time spent in various types of activities to be determined. However, this data source did not provide information regarding the content or quality of the classroom interactions. This type of information was usually available in the narrative records, which tended to give differential weight to classroom interactions and thus divided the activities of the classroom into more or less salient events.

Overall, it was concluded that the primary usefulness of qualitative observation is in generating hypotheses which can be tested using quantitative instrumentation. A combination of qualitative and quantitative methodologies appears to be the most productive approach to classroom observation, either for research, feedback to teachers, or assessment of the impact of intervention.

FIGURE 1

INTERACTION PROFILE FOR TEACHER 04 (PAGE 2 OF 3)

VARIABLE NAME	PERCENT DEVIATION FROM SAMPLE AVERAGE (<2 1 1 0 0 0 1 1 2> / <0 5 0 5 0 5 0 5 0>)	PERCENT SAMPLE AVG.	PERCENT THIS CLASS
LARGE GROUP INITIATED INTERACT, -- TOTAL	X	10.8	5.5
LG, GRP, VERBAL RESP, -- ACADEMIC	X	48.6	37.4
LG, GRP, NONVERBAL RESP, -- ACADEMIC	X	42.8	54.2
LG, GRP, BEHAVIORAL RESPONSE	X	4.6	4.7
LG, GRP, CHORAL RESP,	X	4.4	3.7
T INIT, SMALL GROUP INTERACT, -- TOTAL	X	11.3	5.8
T COMMAND OR REQUEST	X	26.3	25.3
T DIRECT QUESTION	X	25.4	25.8
T INSTRUCTION OR EXPLANATION	X	31.1	33.3
T ACKNOWLEDGMENT	X	2.5	.4
T CORRECT, OR GUIDANCE -- ACADEMIC	X	2.1	0.0
T CORRECT, OR GUIDANCE -- BEHAVIORAL	X	2.4	1.3
T OBSERVING OR LISTENING	X	10.2	13.8
SMALL GROUP INITIATED INTERACT, -- TOTAL	X	8.7	3.2
SM, GRP, VERBAL RESP, -- ACADEMIC	X	48.1	46.8
SM, GRP, NONVERBAL RESP, -- ACADEMIC	X	45.5	53.2
SM, GRP, READING ALOUD	X	6.3	0.0
T NON-INSTRUCTIONAL BEHAV, -- TOTAL	X	15.2	11.8
T WALKING AROUND ROOM	X	9.9	11.0
T ENGAGED IN PAPERWORK	X	90.1	89.0
TOTAL INTERACTIONS	X	100.0	100.0
TOTAL ACADEMIC	X	78.2	81.3
TOTAL BEHAVIORAL	X	3.8	2.3
TOTAL OTHER TASK-ORIENTED	X	18.1	16.4

FIGURE 1

INTERACTION PROFILE FOR TEACHER 04 (PAGE 1 OF 3)

VARIABLE NAME	PERCENT DEVIATION FROM SAMPLE AVERAGE LESS FREQ / AVG / MORE FREQ <2 1 1 0 0 0 1 1 2> <0 5 0 5 0 5 0 5 0>	PERCENT SAMPLE AVG.	PERCENT THIS CLASS
T INITIATED INDIVID. INTERACT. -- TOTAL		53.9	67.7
T COMMAND OR REQUEST		17.5	10.9
T DIRECT QUESTION		21.9	27.7
T RESPONSE		9.2	5.9
T INSTRUCT., EXPLANATION -- VERBAL		9.1	10.0
T INSTRUCT., EXPLANATION -- NONVERBAL		3.2	1.1
T TASK RELATED COMMENTS		4.1	2.1
T ACKNOWLEDGMENTS		12.9	17.0
T PRAISE		2.3	2.6
T CORRECT. OR GUIDANCE -- ACADEMIC		12.3	14.9
T CORRECT. OR GUIDANCE -- BEHAVIORAL		4.5	2.6
T OBSERVING OR LISTENING		3.1	5.2
S INITIATED INTERACTIONS -- TOTAL		80.5	91.4
S QUESTIONS		12.7	8.9
S VERBAL RESPONSE -- ACADEMIC		49.5	59.6
S NONVERBAL RESPONSE -- ACADEMIC		11.4	7.4
S BEHAVIORAL RESPONSE		3.7	2.1
S READING ALOUD		17.8	14.9
S NO RESPONSE OR DON≠T KNOW		4.9	7.1
T INIT. LARGE GROUP INTERACT. -- TOTAL		19.6	14.6
T COMMAND OR REQUEST		19.3	15.1
T DIRECT QUESTION		19.6	21.0
T INSTRUCT., EXPLAN. -- VERBAL		34.4	51.3
T INSTRUCT., EXPLAN. -- NONVERBAL		1.9	0.0
T TASK RELATED COMMENTS		2.0	1.1
T ACKNOWLEDGMENTS		1.9	1.2
T CORRECTS. OR GUIDANCE -- BEHAVIORAL		3.8	1.8
T OBSERVING OR LISTENING		17.1	8.5

FIGURE 1

INTERACTION PROFILE FOR TEACHER 04 (PAGE 3 OF 3)

VARIABLE NAME	DEVIATION FROM SAMPLE AVERAGE: LESS FREQ <2 <0	1 5	1 0	0 5	AVG 0 0	0 5	MORE FREQ 1 0	1 5	2> 0>	FREQUENCY: SAMPLE AVG.	THIS CLASS
T INIT. HAPPY INTERACTIONS					X					4.0	7.0
S INIT. HAPPY INTERACTIONS									X	8.1	29.0
T INIT. UNHAPPY OR NEG. INTERACT.							X			15.8	25.0
PUNISHMENT				X						1.3	1.0
TOUCH (NEGATIVE)				X						1.8	0.0